



REMARKS

Applicants respectfully request that the above-identified application be re-examined.

The December 20, 2001, Office Action in the above-identified application (hereinafter "Office Action") objected to the drawing, and in particular FIGURE 8, because reference character "56" was used to designate both the user's eye and the virtual image. In this regard, attached is a copy of FIGURE 8 illustrating a proposed correction in red, namely, changing reference numeral 56 associated with the virtual image to reference numeral 55. Applicants respectfully request that this drawing change be approved. In anticipation of approval, attached is a letter to the Official Draftsman adding a substitute sheet of drawings including FIGURE 8 with the foregoing correction.

The Office Action also objected to the specification for not containing an abstract on a separate sheet of paper. In this regard, enclosed with this Office Action is an abstract on a separate sheet of paper. Applicants respectfully request that the abstract (which is identical to the abstract in the PCT application on which this application is based) be entered into the file.

The Office Action further objected to Claims 8-12 and 17-28 as being in improper form because these multiple dependent claims depended from other multiple dependent claims. In this regard, these claims have been amended to place them in proper dependent form. As a result, applicant submits that this rejection has been rendered moot.

The Office Action also rejected Claims 1, 4, 13, 29, 30, and 32 under 35 U.S.C. § 102(b) as being anticipated by the teachings of PCT application WO 94/29119 (hereinafter "Jackson"). Claims 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable in view of the teachings of Jackson taken in view of the teachings of U.S. Patent No. 5,678,863 (Knight et al.). Claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable in view of the teachings of Jackson as applied to Claim 13, and Claim 31 was rejected under 35 U.S.C. § 103(a) as being unpatentable in view of the teachings of Jackson as applied to Claim 30. Further, Claim 33 was rejected under 35 U.S.C. § 103(a) as being unpatentable in view of the teachings of Jackson as applied to Claim 29, taken further in view of the teachings of U.S. Patent No. 5,892,239 (Nagase). Claim 37 was allowed and Claims 2, 3, 14, 15, and 34-36 were indicated as allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims.

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For the reasons hereinafter set forth, applicants respectfully submit that all of the claims in this application, including the rejected claims, are clearly allowable over the cited and applied prior art.

Prior to discussing the reasons why applicant believes all of the claims rejected on prior art grounds are allowable, a brief description of the present invention followed by a brief description of the cited and applied references is set forth. The following description of applicants' invention and the cited and applied references is not provided to define the scope or interpretation of any of the claims of this application. Instead, these descriptions are provided to help the United States Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

The present invention is directed to a method of verifying the authenticity of a security document. The security document includes a partially transparent portion and an optical projection element within or superposed with the partially transparent portion. The optical projection element acts to transform a light beam passing through the partially transparent portion into a **patterned beam** of selected design. The method includes the steps of positioning the security documents such that the light beam is transmitted through the partially transparent portion and the **patterned beam** is projected onto a viewing surface and verifying the presence of a pattern image by the impingement of the **patterned beam** on the viewing surface.

The Jackson reference (PCT application WO 94/29119) is directed to a security document or token, such as a bank note, provided with a transparent portion of plastic material that includes a security device. The region surrounding the transparent portion, and preferably all the remaining part of the bank note, is printed with indicia. The security device includes regions of embossed lines extending at different angles to each other defining different shapes that are visible to a greater or lesser extent upon transmission and reflection of light as the bank note is tilted, rotated, or viewed from different angles relative to a light source. The embossed lines in some of the regions are finer than coarser and deeper and more widely spaced lines in the other regions. The coarser, deeper lines are of such a thickness and width to be detected by touch in addition to being visible by the naked eye. The embossed lines can be viewed from the back side of the security document as well as from the front side by reflection.

In contrast to the present invention, Jackson does not disclose an optical projection element acting to transform a light beam into a **patterned beam** of selected design. Neither does Jackson disclose positioning a security document such that the patterned beam is projected onto a

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viewing surface. In this regard, applicants point out that a patterned beam is a specific type of beam generated by particular types of optical projection elements--for example, diffractive optic projection elements and diffusers. A source of such elements is identified in the present application, namely, MEMS Optics Pty. Ltd. See page 8, lines 16 and 17. The MEMS Optical Inc. Internet Web site is located at <http://www.memsoptical.com>. This Web site describes how diffractive optical projection elements are used to pattern instant laser light into a desired patterned beam. A clear distinction is made in this site between devices which "pattern" instant light beams, as opposed to those devices which split or diffuse an incident beam. Examples of patterned beams that may be produced by such elements are depicted at <http://www.memsoptical.com/prodserv/products/diffuser.htm>. U.S. Patent No. 5,564,198 describes one application of such diffractive optical projection elements. This patent describes diffractive optical projection elements, each consisting of a binary amplitude matrix transferred to transparent regions in eyeglasses. When a light source is viewed through the transparent regions, "preselected patterns of light" in the form of "NOEL" are seen by the wearer of the eyeglasses at the locations of the matrices. This document and the foregoing sites make it clear that the phrase "patterned beam" has a specific meaning in the field of diffraction optics which distinguishes the present invention from prior art of the type exemplified by the Jackson patent.

Knight et al. (U.S. Patent No. 5,678,863) is directed to a means of identification of a document of value that includes a paper or polymer region, in particular bank notes, passports, identification cards, or any other document of sufficient value to make it liable to be copied or counterfeited. The means of identification includes a watermark in the region and a liquid crystal material applied to the region and to at least a part of the watermark to produce optical effects that differ when viewed in transmitted and reflected light. Like Jackson, Knight et al. does not disclose an optical projection element transforming a light beam into a patterned beam of selected design, much less position a security document such that the patterned beam is projected onto a viewing surface.

Nagase is directed to a bill or security discriminating apparatus including at least one irradiating device for irradiating a surface of a bill or security document at a predetermined angle with respect to the surface thereof and a polarization separating device for receiving light reflected by the surface of the bill or security document and separating the received light into P-polarized light and S-polarized light. The apparatus further includes a first light detector for photoelectrically detecting the P-polarized light separated by the polarization separating device

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and generating an electrical signal in accordance with the intensity of the detected light. The apparatus further comprises a second light detector for photoelectrically detecting the S-polarized light separated by the polarization separating device and generating an electrical signal in accordance with the intensity of the detected light. In addition, the apparatus comprises a discriminator for discriminating the bill or security document in accordance with the intensity of the P-polarized light and S-polarized light based on the electrical signals input from the first and second light detectors. Again, like Jackson and Knight, Nagase does not disclose a project element transforming a passing light beam into a patterned beam of selected design, much less positioning a security document such that the patterned light beam is projected onto a viewing surface.

Turning now to the claims, Claim 1 is directed to a method of verifying the authenticity of a security document. The security document is recited as including a first at least partially transparent portion and an optical projection element within or superposed with the first at least partially transparent portion. The optical projection element is recited as acting to transform a light beam passing from a light beam source through said first at least partially transparent portion into a **patterned beam** of selected design. The method includes the steps of positioning the security document such that the light beam is transmitted through the first at least partially transparent portion and the patterned beam is projected onto a viewing surface, and verifying the presence of a pattern image by the impingement of the pattern beam on the viewing surface. As discussed above, this subject matter is clearly not taught or suggested by any of the cited and applied references. As a result, applicants respectfully submit that Claim 1, and all of the claims dependent therefrom that were rejected on prior art grounds in the Office Action (Claims 4-7) are clearly allowable over the cited and applied references.

Claim 13 is directed to a security document including a first at least partially transparent portion and an optical projection element within or superposed with the first at least partially transparent portion. The optical projection element is recited as acting to transform a light beam passing from a light beam source through the at least partially transparent portion into a **patterned beam** of selected design. Again, as noted above, this subject matter is not taught or suggested by any of the cited and applied references. As a result, applicants respectfully submit that Claim 13 and the claims dependent therefrom that were rejected on prior art grounds in the Office Action (Claim 16) are clearly allowable over the cited and applied references.

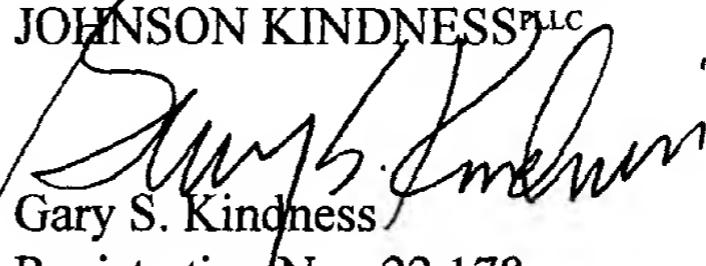
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Claim 29 is directed to a method of verifying the authenticity of a security document. The security document is recited as including a first at least partially transparent portion, and an optical projection element within or superposed with the first at least partially transparent portion. The optical projection element is recited as acting to transform a light beam passing from a light beam source through said first at least partially transparent portion into a **patterned beam** of a selected design. The method involves the steps of positioning the security document so as to enable a user to look at the light beam source through the first at least partially transparent portion, verifying the presence of an image corresponding to the patterned beam in the user's field of vision. Again, as noted above, clearly this subject matter is not taught or suggested by any of the cited and applied references. As a result, applicants respectfully submit that Claim 29, and the claims dependent therefrom that were rejected on prior art grounds in the Office Action (Claims 30-33), are clearly allowable over the cited and applied references.

In view of the foregoing amendments and remarks, applicants respectfully submit that all of the claims in this application objected to for matters of form and rejected on prior art grounds are clearly allowable. Consequently, early and favorable action allowing these claims and passing this application to issue is respectfully solicited. If the Examiner has any questions, he is invited to contact applicants' attorney at the number set forth below.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to U.S. Patent and Trademark Office, P.O. Box 2327, Arlington, VA 22202.

Date: 3/20/02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE MARCH 20, 2002

In the Claims:

Please amend Claims 8, 9, 10, 12, 17, 18, 19, 20, 25, and 26, as follows:

8. (Amended) Method according to [any one of the preceding claims]claim 1, wherein the optical projection element acts to generate the patterned beam by diffraction of the light beam transmitted through the security document.

9. (Amended) Method according to [any one of the preceding claims]claim 1, wherein the security document includes a second at least partially transparent portion, the method further including the step of:

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folding the security document such that part only of the light beam from the light beam source passes firstly through the second at least partially transparent portion before being transmitted through said first at least partially transparent portion, said second at least partially transparent portion thus acting as a pseudo point light source.

10. (Amended) Method according to [any one of the preceding claims]claim 1, wherein the security document includes an optical image or device, applied to the opacifying portion, which interacts with the patterned beam impinging on the opacifying portion to create a visual security effect, the method further including the step of:

verifying the presence of the visual security effect.

12. (Amended) Method according to [either of claims 11 or 12]claim 10, wherein the optical image or device is a reflective foil OVD or other like device.

17. (Amended) Security document according to [any one of claims 13 to 16]claim 13, and including an at least partially transparent substrate having first and second opposing faces, and an opacifying layer applied to at least one of the faces, the first at least partially transparent portion being applied to leave an uncoated area on the at least one surface.

18. (Amended) Security document according to [any one of claims 13 to 17]claim 13, and further including a second at least partially transparent portion for transmitting

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part only of the light beam from the light beam source, the second at least partially transparent portion thus acting as a pseudo point light source.

19. (Amended) Security document according to [any one of claims 13 to 18]claim 13, wherein the security document includes an optical image or device, applied to the opacifying portion, which interacts with the patterned beam impinging on the opacifying portion to create a visual security effect.

20. (Amended) Method of producing a security document [as described above]according to claim 1, including the steps of:

forming an at least partially transparent substrate having first and second opposing surfaces, coating at least one face of the substrate within an opacifying layer, the opacifying layer being applied to leave a first uncoated area on the at least one surface,

conveying the optical projection element into position over the first uncoated area, and transferring the optical projection element onto the substrate.

25. (Amended) Method according to [any of claims 20 to 24]claim 20, wherein the opacifying layer is applied to also leave a second uncoated area on the at least one surface, the second uncoated area acting as a pseudo point light source when a light beam passes through the security document in the second uncoated area.

26. (Amended) Method according to [any one of claims 20 to 25]claim 20, and further including the step of:

applying an optical image or device to an opacifying portion of said opacifying layer.

In the Abstract:

A new Abstract of the Disclosure section has been added.

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ABSTRACT OF THE DISCLOSURE

Method of verifying the authenticity of a security document (1), the security document including a first at least partially transparent portion (7, 8) and an optical projection element (9) within or superposed with the first at least partially transparent portion (7, 8), the optical projection element (9) acting to transform a light beam (10a) passing from a light beam source through said first at least partially transparent portion (7, 8) into a patterned beam (11) of selected design, the method including the steps of: positioning the security document such that the light beam is transmitted through the first at least partially transparent portion and the patterned beam is projected onto a viewing surface (14), and verifying the presence of a patterned image by the impingement of the patterned beam on the viewing surface (14).

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